

Supplementary Information

Why Surface Diffusion is the Same in Ultrastable, Ordinary, Aged, and Ultrathin Molecular Glasses?

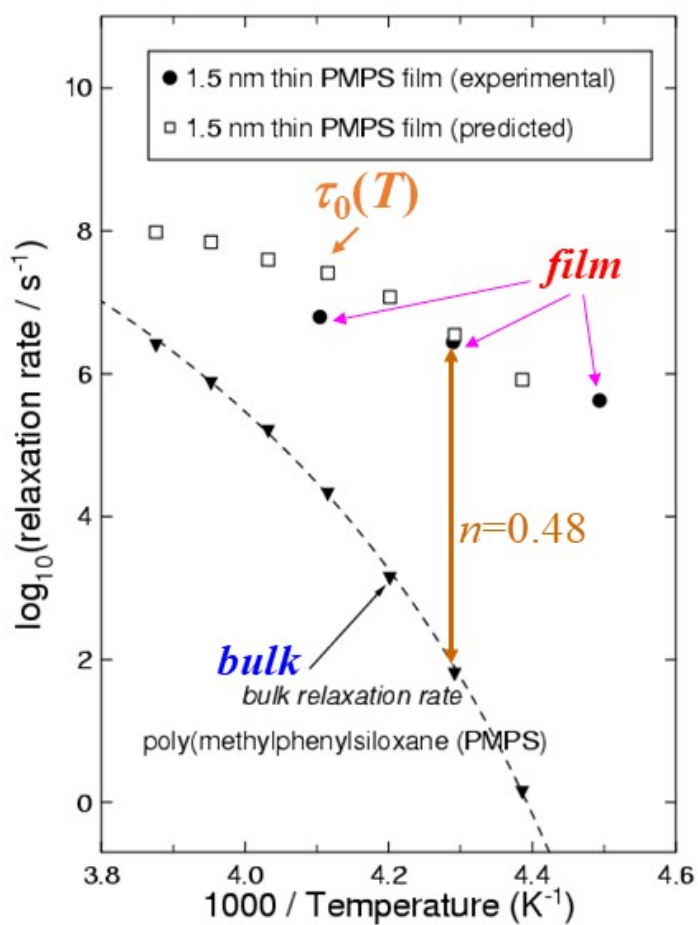


Figure S1. Arrhenius plot of the experimental α -relaxation times (triangles) and the calculated primitive relaxation times τ_0 (open squares) of bulk PMPS. The dashed line is the Vogel-Fulcher fit to the α -relaxation times of bulk PMPS. The filled circles are the relaxation times τ_{film} of the 1.5 nm thin film. There is good agreement between τ_{film} and τ_0 .

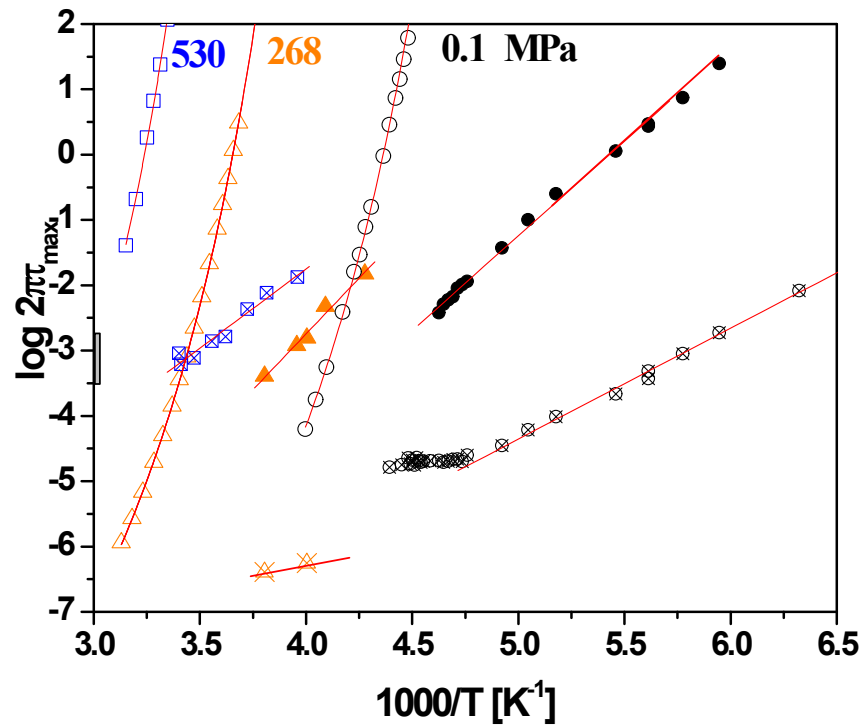


Figure S2. Relaxation map representing the structural (open symbols), the secondary JG (closed symbols) and the γ - (crossed symbols) relaxation times in di-propylene glycol dibenzoate (DiPGDB) as a function of inverse temperature for three different isobaric conditions: 0.1 MPa (circles), 268 MPa (triangles), 530 MPa (squares). At the reference temperature where $2\pi\tau_{\alpha}=100$ s the value of τ_{JG} is almost constant within the range represented by the grey rectangle on the y-scale.

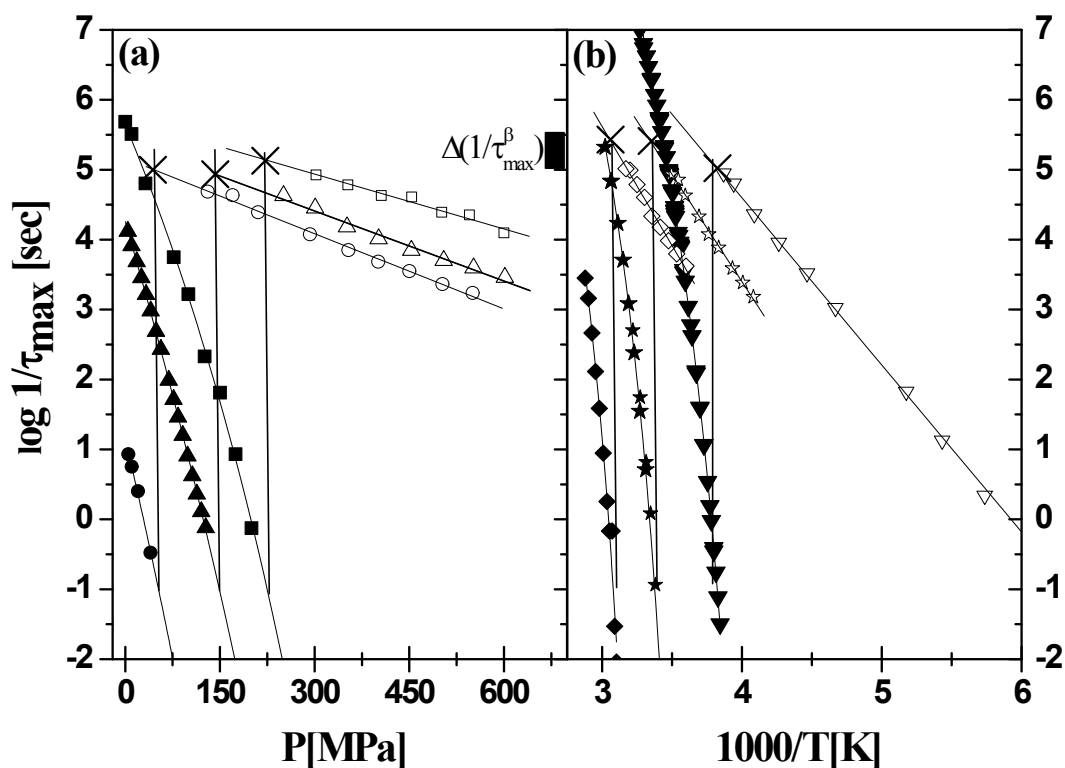


Figure S3. Poly(phenylglycidylether) (PPGE). (a) Pressure dependence of the logarithm of τ_{\max} for the α - (full symbols) and the β - (open symbols) process, at two different values of T : 293 (squares), and 267.6 K (circles) (b) Temperature dependence of the logarithm of τ_{\max} for the α - (full symbols) and the β - (open symbols) process, at two different values of pressure: 0.1 (triangles), 240 MPa (stars), and 500 MPa (diamonds). In both panels the continuous lines represent fit with the VFT (α -relaxation) and Arrhenius (β -relaxation) equations. The horizontal dotted line shows the relaxation time value used to define the glass transition. Crosses are the extrapolated values of $\tau_{\beta\max}$ at (T, P) s.

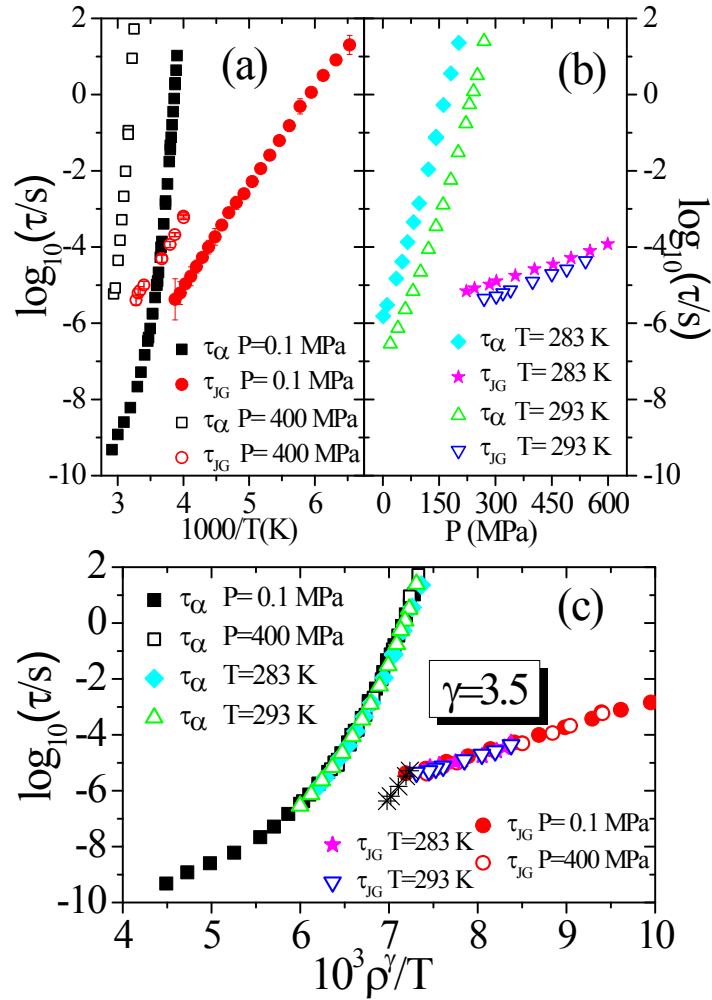


Figure S4. Logarithm of characteristic time of dielectric loss maximum of DGEBA (diglycidyl ether of bisphenol-A, $M_w=380$ g/mol, also known as EPON 828) for α -relaxation and JG β -relaxation in isobaric condition versus reciprocal temperature (a), and in isothermal condition versus pressure (b), and an overall plot of the same data versus ρ^γ/T (c). When not shown, error bars are smaller than symbol size. Black asterisks in panel (c) indicates the values for $\log_{10}(\tau_0)$ at several state points calculated by the Coupling Model Eq.(10) with the stretch exponent $\beta_k=(1-n)=0.52$ obtained by fitting the frequency dispersion of the α -relaxation by the Fourier transform of the Kohlrausch-Williams-Watts function, Eq.(2). Density data in the glassy state have been extrapolated from the values of glass compressibility and expansivity.